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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/049,955	06/19/2002	Dominique Bonnet	1217-0156P	2612

2292 7590 05/03/2007

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EXAMINER	
KHANNA, HEMANT	

ART UNIT	PAPER NUMBER
1654	

NOTIFICATION DATE	DELIVERY MODE
05/03/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No.	Applicant(s)	
	10/049,955	BONNET ET AL.	
	Examiner	Art Unit	
	Hemant Khanna	1654	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 February 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17,19 and 20* is/are pending in the application.

4a) Of the above claim(s) *11-16,19 and 20* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10 and 17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *02/19/02*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's election with traverse of claims 1-10, and 17 that belong to Group I in the reply filed on February 12, 2007 is acknowledged. The traversal is on the ground(s) that because the European Patent Office did not allege a negative finding with respect to lack of unity of invention, all designated offices must also conform to the lack of unity of invention finding (Remarks, Page 2). Further, the Applicants argue that the examiner has wrongly interpreted MELNYK (Remarks, Page 3) and therefore the different group of inventions are so linked to form a single general inventive concept under PCT Rule 13. Hence, the pending claims should be examined together in this application (Remarks, Page 4).

The applicant's arguments are not found persuasive. The Applicant is reminded that under PCT rule 13 (MPEP 1850), the international application shall relate to one invention only or a group of inventions if they relate to a single general inventive concept. A lack of finding with respect to the unity of invention by a European Patent Office is not binding on the USPTO. Further, The Examiner respectfully submits that the Applicant has confused the content of MELNYK. MELNYK does not teach the use of thiol chemistries or disulphide links as alleged by the Applicant.

Further, the Examiner acknowledges that while the Applicant has clarified that the "effects of the claimed process" (Remarks, Page 3) are the special technical feature that unites the multiple inventions the Examiner respectfully submits that the expression "special technical feature" refers to those features that define a contribution which each of the claimed inventions, considered as a whole makes over the prior art. Thus, a

feature found in the prior art cannot be considered to be a special technical feature. Groups I, II and III are drawn to hydrazide compounds, methods for producing the hydrazide compounds and methods of using the hydrazide compounds (functional property).

MPEP 2113 reads "The patentability of a product does not depend on its method of production". Even if the Applicant has discovered that the claimed process exhibits effects not taught by the prior art, such a discovery does not render the hydrazide itself new in the art. As such, the scope of the hydrazides encompassed by Groups I II, and III includes the hydrazides disclosed in the MELNYK reference, and also includes the hydrazides in the Bonnet reference (disclosed by the Applicant in the IDS filed 02/19/2002) which discloses hydrazinoacetylpeptides coupled to lipids as set forth below. Hence, the process effects to produce hydrazides cannot be considered a special technical feature.

The restriction between Groups I, II and III is maintained.

The requirement is still deemed proper and is therefore made FINAL.

Applicant elected the species of lipids. Applicant's species has not been found free of the prior art, as is rejected under 35 USC 102(a) as set forth below.

Claims 1-17, 19-20 are pending.

Claims 11-16, 19-20 are withdrawn from consideration as being drawn to a non-elected invention. Election was made **with** traverse in the reply filed on February 12, 2007.

Priority

2. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d) based on an application filed in Europe on August 19, 1999 and December 06, 1999. It is noted, however, that applicant has filed certified copies of the both 99/10626 and 99/15342 in the French language.

Specification

3. The disclosure is objected to because of the following informalities: the title "Brief Description of the Drawings" is missing. See 37 CFR 1.74. Appropriate correction is required.

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claim 17 is rejected as being directed to non-statutory subject matter. A "Use" is not a statutory class of invention.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors.

Claims 1 and 2 recite the limitation "bearing a function", "reactive function" "ester function", and "carbonate functions". It is unclear if the limitations are referring to groups having functions that are not recited but similar to the functions that carboxylic acids or esters perform, or if the limitations are referring to ester and carbonate functional groups. Claims 2-10 depend from claim 1, and are indefinite.

In Claim 2, lines 3 and 7, recite the limitation "activation of the function" and "reaction in solution". The limitations are not drawn to active method steps involving "activating" and "reacting" respectively. It is unclear if the instant limitations are intended use and what the relationship is between the limitations and the active "coupling step" recited in the preamble.

Claim 2, line 5 recites the limitation "carboxylic acid function and an alcohol function". There is insufficient antecedent basis for this limitation in the claim. Claim 2 depends from claim 1, which consists of Markush selection for a single functional group that is selected from carboxylic acid and alcohol functions and does not provide support for "both".

Claim 2, line 10 recites the limitation "possibly present at some point". It is not clear whether lysine or ornithine are present and what there location is in the peptide sequence that is undergoing coupling.

Claim 3, line 2 recites the limitation "modified peptide". There is insufficient antecedent basis for this limitation in the claim. Claim 3 depends from claim 2, which in turn depends from claim 1, which discloses a coupling process between a peptide and at least one compound A, and does not provide support for a process leading to a "modified" peptide.

Claim 8, line 3 recites the limitation "alcohols". Claim 8 depends from claim 1, which recites a Markush selection of functional groups for compound A, one of which is an alcohol functionality. It is not clear if the alcohol in the Markush selection of claim 8, is referring to the same alcohol in the Markush selection of claim 1.

Claim 17, is indefinite because it is not clear what constitutes a "Use", e.g. it is not clear if Applicant's are claiming a product with an intended use limitation or a method of use or if the Applicant is claiming a product-by-process.

8. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-9, are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter that was not described in the specification in such a way as to reasonably convey to one

skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The MPEP states that the purpose of the written description requirement is to ensure that the inventor had possession, as of the filing date of the application, of the specific subject matter later claimed by him. The courts have stated:

"To fulfill the written description requirement, a patent specification must describe an invention and do so in sufficient detail that one skilled in the art can clearly conclude that "the inventor invented the claimed invention." Lockwood v. American Airlines, Inc., 107 F.3d 1565, 1572, 41 USPQ2d 1961, 1966 (Fed. Cir. 1997); In re Gostelli, 872 F.2d 1008, 1012, 10 USPQ2d 1614, 1618 (Fed. Cir. 1989) ("[T]he description must clearly allow persons of ordinary skill in the art to recognize that [the inventor] invented what is claimed."). Thus, an applicant complies with the written description requirement "by describing the invention, with all its claimed limitations, no that which makes it obvious," and by using "such descriptive means as words, structures, figures, diagrams, formulas, etc., that set forth the claimed invention." Lockwood, 107 F.3d at 1572, 41 USPQ2d at 1966." Regents of the University of California v. Eli Lilly & Co., 43 USPQ2d 1398.

The MPEP lists factors that can be used to determine if sufficient evidence of possession has been furnished in the disclosure of the Application. These include "level of skill and knowledge in the art, partial structure, physical and/or chemical properties, functional characteristics alone or coupled with a known or disclosed correlation between structure and function, and the method of making the claimed invention. Disclosure of any combination of such identifying characteristics that distinguish the claimed invention from other materials and would lead one of skill in the art to the conclusion that the applicant was in possession of the claimed species is sufficient." MPEP § 2163.

Further, for a broad generic claim, the specification must provide adequate written description to identify the genus of the claim. In Regents of the University of California v. Eli Lilly & Co. the court stated:
"A written description of an invention involving a chemical genus, like a description of a chemical species, 'requires a precise definition, such as by structure, formula, [or] chemical name,' of the claimed subject matter sufficient to distinguish it from other materials." Fiers, 984 F.2d at 1171, 25 USPQ2d at 1606; In re Smythe, 480 F.2d 1376, 1383, 178 USPQ 279, 284985 (CCPA 1973) ("In other cases, particularly but not necessarily, chemical cases, where there is unpredictability in performance of certain species or subcombinations other than those specifically enumerated, one skilled in the art may be found not to have been placed in possession of a genus ...") Regents of the University of California v. Eli Lilly & Co., 43 USPQ2d 1398.

The MPEP further states that if a biomolecule is described only by a functional characteristic, without any disclosed correlation between function and structure of the sequence, it is "not sufficient characteristic for written description purposes, even when accompanied by a method of obtaining the claimed sequence." MPEP 2163. The MPEP does state that for a generic claim the genus can be adequately described if the disclosure presents a sufficient number of representative species that encompass the genus. MPEP 2163. If the genus has a substantial variance, the disclosure must describe a sufficient variety of species to reflect the variation within that genus. See MPEP 2163. Although the MPEP does not define what constitute a sufficient number of representative species, the courts have indicated what do not constitute a representative number of species to adequately describe a broad generic. In Gostelli, the courts determined that the disclosure of two chemical compounds within a subgenus did not describe that subgenus. In re Gostelli, 872, F.2d at 1012, 10 USPQ2d at 1618.

The factors considered in the Written Description requirement are (1) level of skill and knowledge in the art, (2) partial structure, (3) physical and/or chemical properties, (4) functional characteristics alone or coupled with a known or disclosed correlation between structure and function, and the (5) method of making the claimed invention.

In the instant case, the claims are drawn to a coupling process between a peptide and at least one compound A, of non-peptidic nature, which includes the step of activation of the functionality of compound A, and reacting the activated compound A with a peptide bearing a hydrazine derivative to yield a hydrazide link between the peptide and compound A.

(1) Level of skill and knowledge in the art:

The level of skill to practice the art of the instantly claimed invention is high with regard to the synthesis of modified peptides having a hydrazide link

(2) Partial structure:

The specification description is directed to any and all sugars, alcohols, and fluorescence markers as possibilities for compound A without any disclosure of a common core or partial structure.

(3) Physical and/or chemical properties:

There are no physical or chemical properties recited for the vast selection of compounds that encompass compound A.

(4) Functional characteristics

The specification discloses that compound A bears a functional group selected from a carboxylic acid functional group or an alcohol functional group which is capable of reacting upon activation

(5) Method of making the claimed invention:

Standard solution phase or solid-phase peptide synthesis

As stated supra, the MPEP states that written description for a genus can be achieved by a representative number of species within a broad generic. It is unquestionable that claim 1 is a broad generic, with respect to all possible variants of compound A encompassed by the claims. The possible structural variations are limitless to any and all sugars, alcohols, and fluorescence markers with either a carboxylic acid or alcohol functional group. It must not be forgotten that the MPEP states that if a compound is described only by a functional characteristic, without any disclosed correlation between function and structure of the compound, it is "not sufficient characteristic for written description purposes, even when accompanied by a

method of obtaining the claimed sequence. "MPEP § 2163. Here, though the claims may recite some functional characteristics of being able to react with peptides having a hydrazine group, the claims lack written description because there is no disclosure of structure of the compound A beyond the recitation of lipopeptides in the examples in the specification.

The specification only describes lipids with structural limitations capable of reacting with peptides to form modified peptides with a hydrazide link. The specification does not describe other structures of sugars, fluorescence markers, or alcohols with functional groups selected from carboxylic acid or alcohols that will react with peptides. There is insufficient description of all other compound A that would qualify as being amenable to activation, and reaction with peptide hydrazides.

There is insufficient description of compound A and its selection from sugars, alcohols and fluorescence markers, with the exception of lipids such as palmitic acid, stearic acid, cis-9,10-epoxystearic acid, oleic acid, linoleic acid and cholesterol that would qualify for the functional characteristics as claimed that would allow one of skill in the art to practice the invention as claimed. The description requirement of the patent statue requires a description of an invention, not an indication of a result that one might achieve if one made that invention. See In re Wilder, 736, F.2d 1516, 1521, 222 USPQ 369, 372-73 (Fed. Cir. 1984) (affirming rejection because the specification does "little more than outlin[e] goals appellants hope the claimed invention achieves and the problems the invention will hopefully ameliorate.").

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

10. Claims 1-10 are rejected under 35 U.S.C. 102(a) as being anticipated by Bonnet (Tetrahedron Letters, (January 2000) pages 45-48, and as disclosed by the Applicant in the IDS filed 02/19/2002)

The instant claims are drawn to a process of coupling between a peptide and one compound A, wherein compound A is activated and subsequently reacted with a peptide having a hydrazine group to yield a compound with a hydrazide link.

With respect to claims 1-10, Bonnet teaches the coupling between lipids carrying an activated succinimido gp with a peptide having an acetylhydrazino group to yield a hydrazide link between peptide and compound A (lipid), thus meeting the limitations of claims 1-4, 8-10 (page 46, Scheme 1, page 48, scheme 3). Bonnet also teaches HPLC purification of the peptide modified by the hydrazino acetic acid group upon reaction with N,N-di(Boc)hydrazinoacetic acid (Scheme 2), thus meeting the limitations of claims 5-7.

11. Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

Conclusion

12. No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hemant Khanna whose telephone number is (571) 272-9045. The examiner can normally be reached on Monday through Friday, 7:30 am-4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cecilia Tsang can be reached on (571) 272-0562. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Hemant Khanna Ph.D.
April 23, 2007

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